Overview of Injury Among Children in Washington

The data in this report focuses on 1999-2001, the most current information available when the report was started. Three years of death data were combined in order to provide a larger sample for detailed analysis. During this time period, injuries claimed the lives of 654 Washington children ages 0-17, and there were 10,317 hospitalizations due to injury.

The injury death rate for Washington children 0-17 years old is 14.4 per 100,000. Motor vehicle occupant injuries are the leading cause of death, causing 29 percent of all injury deaths. Suffocation is the second, followed by drowning.

Leading Causes of Death from Injury
Washington State, Ages 0-17, 1999-2001, (N=4,553,434)

Cause	Count	%	Rate per 100,000
Motor vehicle occupant injuries	192	29	4.2 (3.7 – 4.9)
Suffocation	99	15	2.2(1.8 – 2.6)
Drowning	80	12	1.8 (1.4 – 2.2)
Firearms	65	10	1.4 (1.1 – 1.8)
Pedestrian	41	6	0.9 (0.7 – 1.2)
Other injuries	177	27	3.9 (3.4 – 4.5)
All Injuries	**654**	**100**	**14.4 (13.3 – 15.5)**

During 1999-2001, there were 10,317 injury-related hospitalizations in Washington children 0-17 years old. Injuries due to falls were the leading cause of hospitalization. Poisoning and motor vehicle occupant injuries follow as other leading causes of hospitalization due to injury.

Leading Causes of Hospitalization from Injury
Washington State, Ages 0-17, 1999-2001, (N=4,553,434)

Cause	Count	%	Rate per 100,000
Falls	2413	23	53.0 (50.9-55.2)
Poisoning	1395	14	30.6 (29.1-32.3)
Motor vehicle occupant injuries	1064	10	23.4 (22.0-24.8)
Struck by or against an object	814	8	17.9 (16.7-19.2)
Bicycle injuries	619	6	13.6 (12.6-14.7)
Other injuries	4012	39	88.1 (85.4-90.9)
All Injuries	**10,317**	**100**	**226.6 (222.3-231.0)**

Most injury-related deaths (73 percent) and hospitalizations (84 percent) among Washington children 0-17 years old were unintentional. Among intentional deaths, suicide accounted for 11 percent of deaths and 10 percent of hospitalizations, and homicide accounted for 12 percent of deaths and 4 percent of hospitalizations.

Intent of Injury Deaths and Hospitalizations
Washington State, Ages 0-17, 1999-2001

	Deaths		Hospitalizations	
Intent	Count	Percent	Count	Percent
Unintentional	479	73	8,639	83
Suicide	73	11	1,005	10
Homicide	79	12	406	4
Undetermined	22	4	264	3
Legal intervention	1	0	3	0
Total	**654**	**100**	**10,317**	**100**

Injury Risk Factors and Disparities

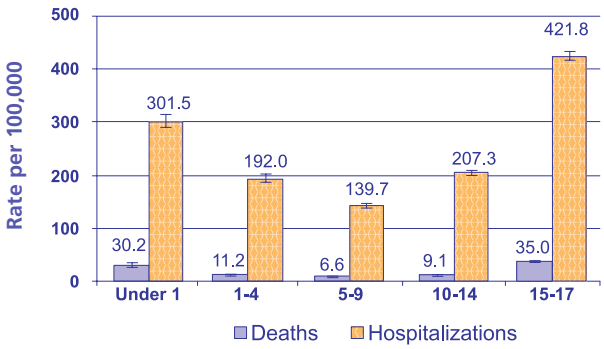
The first step in injury prevention is to understand the risk factors and higher-risk groups. While every child is at risk for injury, some groups are affected more frequently. For example, nationally American Indian and Alaska Native children have disproportionately higher death rates from injury as do children in low-income families.

Factors associated with childhood injury include the youngest and oldest age groups, male gender, poverty, lack of education, substance abuse, bullying, living in a rural community, and living or working on a farm. Understanding these differences and risk factors is a first step toward eliminating disparities in injury prevalence among Washington's children.

Age Group

Children under 1 year old and adolescents 15-17 years old have the highest death and hospitalization rates among all Washington children 0-17 years old.

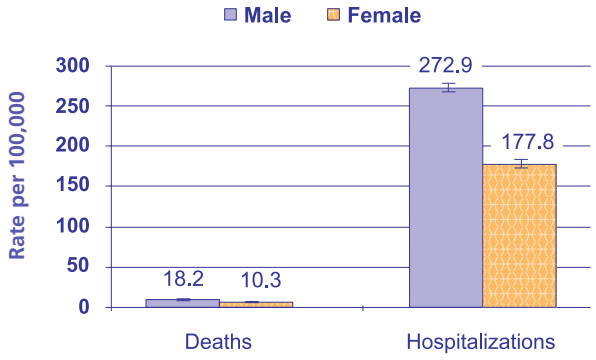
Injury Death and Hospitalizaton
Rates by Age Group
Washington Children, Ages 0-17, 1999-2001



Gender

Washington males, ages 0-17, have higher death and hospitalization rates compared to females.

Injury Death and Hospitalization
Rates by Gender
Washington Children, Ages 0-17, 1999-2001



Race and Ethnicity[3,4]

Washington's American Indian and Alaska Native, and African American children have significantly higher injury death rates than children in other racial groups. Injury death rates between Hispanics and non-Hispanics do not differ significantly.

Washington Injury Death Rate by Race and Ethnicity, Ages 0-17, 1997-2001

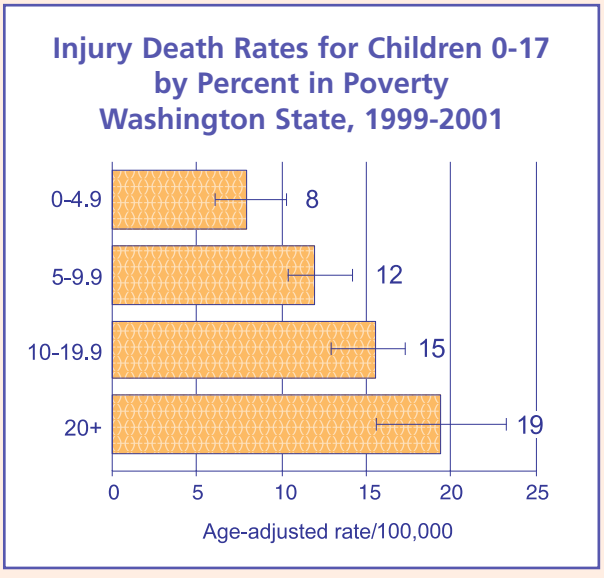
Race	Death Rate (95% CI)
White	14.3 (13.4-15.2)
African American	19.8 (15.9-24.6)
American Indian and Alaska Native	29.8 (23.0- 38.5)
Asian and Pacific Islander	10.8 (8.3-14.1)
Ethnicity	
Hispanic	15.9 (13.4-18.9)
Non-Hispanic	14.6 (13.7-15.5)

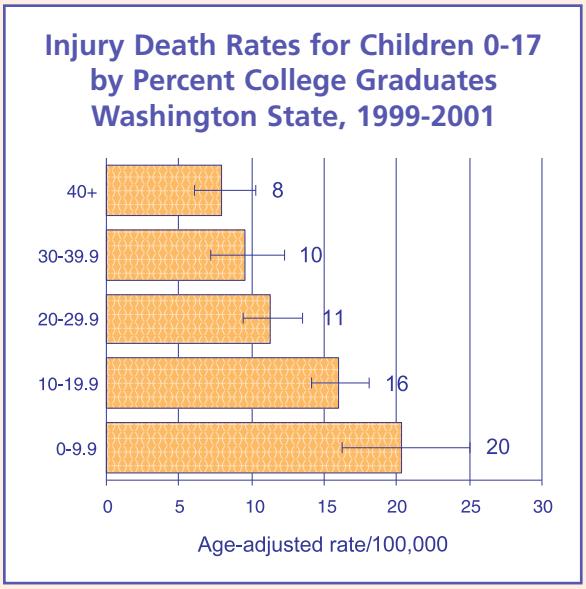
Income and Education

Poverty was measured as the percent of the population that was at or below the federal poverty level in the census tract[5] in which the child who died resided. During 1999-2001, the child death rate from injury increased as the proportion of people living in poverty increased.

Several factors common to low-income families may increase a child's risk of injury, including single-parent households, lack of formal education, young maternal age, and multiple siblings. Children from low-income families generally live in more hazardous environments that may increase their risk of injury. Risk factors include substandard and overcrowded housing, lack of safe recreational facilities, proximity of housing to busy streets, inadequate childcare or supervision, increased exposure to physical hazards, and limited access to health care. Low-income families are less likely to use safety devices due to lack of money, lack of transportation to obtain safety devices, lack of control over housing conditions, or all of these.[6]

Educational level was assigned to each child who died of an injury, based on the percent of people age 25 and older with a college education in the census tract in which the child resided at death. During 1999-2001, child death rates decreased as the proportion of the population that completed college increased.





Substance Abuse

Use of alcohol and/or other drugs among supervising adults and older children plays a significant role in injuries. Nationally, alcohol is involved in about 35 percent of young adult (15-20 years old) driver fatalities. Alcohol is involved in about 40 percent of all adolescent drowning deaths.[7] Impairment by or use of alcohol and/or other drugs was a factor in 19 percent of all the injury deaths, 33 percent of homicides, and 22 percent of suicides among Washington children 0-17 years old, as reported by local child death review teams.

Unsupervised After-school Activities

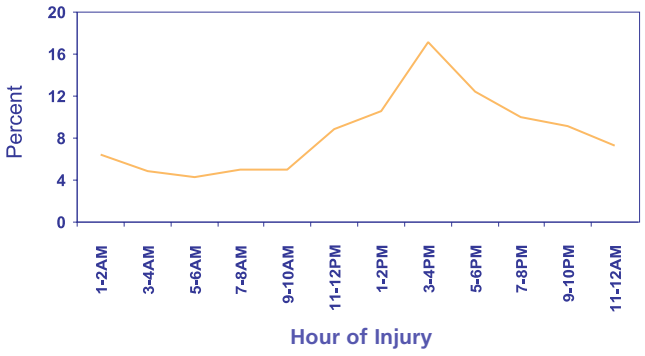
Based on data from the 2002 Healthy Youth Survey, the majority of Washington students in grades 8-12 reported they participated in supervised after school activities for 1-2 hours a week or less.

Number of Hours in Supervised After-School Activity Per Average Week
Healthy Youth Survey, Washington 2002

	Grade 8	Grade 10	Grade 12
None	40.5% (± 2.5%)	35.4% (± 2.9%)	36.7% (± 3.9%)
1-2 Hours	25.4% (± 1.8%)	20.9% (± 2.2%)	19.0% (± 1.8%)
3 or More Hours	34.1% (± 1.2%)	43.8% (± 1.6%)	44.2% (± 1.9%)

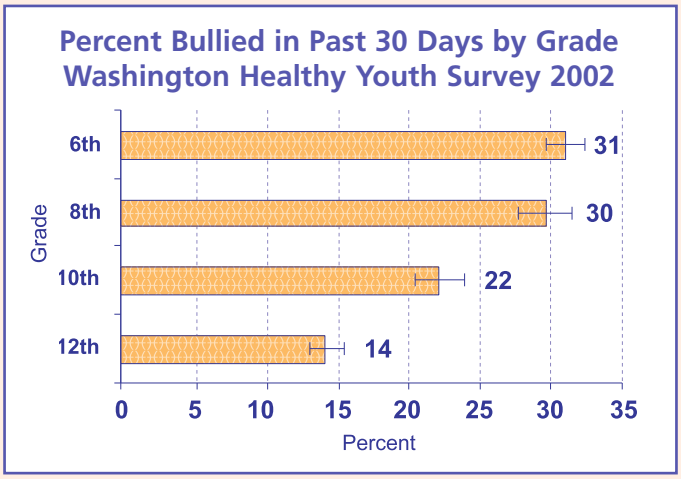
Injury deaths in Washington children peak in the late afternoon. About 40 percent of injuries leading to death occurred in the after-school and early-evening hours. There is no information on participation in supervised activities for the children that died. However, it's logical to assume that if children were in adequately supervised activities after school, they would be less likely to die from an injury.

Percent of Injury Deaths
by Hour of Injury
Ages 0-17, Washington 1999-2001



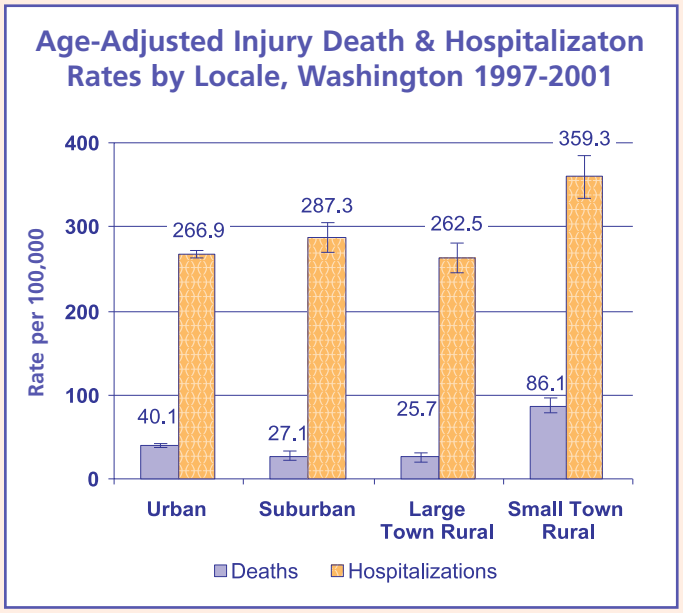
Bullying

Bullying other children or being the target of bullies is a factor associated with youth violence.[8] Based on data from the 2002 Healthy Youth Survey, younger students in Washington are more likely to report being bullied in the past month than older students. For instance, about 30 percent of sixth graders report being bullied compared to about 15 percent of twelfth graders.[9]



Rural and Urban Residence[10]

Age-adjusted[11] injury death and hospitalization rates are significantly higher among children who live in rural areas compared to urban areas. These differences may be partially explained by delayed pre-hospital care, severity of injuries received, longer motor vehicle distance traveled, higher motor vehicle speeds, and less seat belt use in rural areas. Differences in injury rates between rural and urban Washingtonians may reflect underlying differences in demographics.[12] For example, lower education attainment and incomes are risk factors for increased injury death rates. The residents of rural Washington generally have lower incomes and have completed fewer years of formal education than those in other areas.



Living or Working On a Farm

Farming is one of the most dangerous industries in the United States. Each year, approximately 100,000 children under 20 years of age are injured on farms and more than 100 are killed. Approximately 1.5 million children under the age of 20 live, work, or have a regular presence on farms. Included in this total are children of farm families, farm workers, and migrant and seasonal workers. These children are exposed daily to many farm hazards including tractors, farm machinery, pesticides, and livestock.[13]

In Washington during 1997- 2001, injury data indicate that agricultural machinery was responsible for three deaths and 14 hospitalizations for Washington children 0-17 years old. However, these numbers are likely to be an underestimate of the magnitude of the problem, as only injuries coded as agricultural machinery are counted. Because of the lack of data on agricultural injuries among Washington children, a chapter is not devoted to this topic. Also, because of the small number of injuries attributed to farming, the elevated injury death and hospitalization rates in rural areas are unlikely to be due to farming.

Reducing Injury in High-Risk Groups

The second step in injury prevention is to implement prevention strategies that have been identified as best practices and to target high-risk groups and behaviors where appropriate. Strategies vary depending on the injury mechanism and intent, and can also be population or target audience specific. An example would be drowning, where the prevention strategies will be very different for public pools than they will be for beaches or for boating.

Our intent in providing these strategies is to assist communities and organizations by identifying those that have the most promise in being effective. After reviewing the strategies, communities may need assistance developing a plan and implementing the strategy most suited to their need. The Injury Prevention Program staff is available to provide assistance as needed.

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[1] Injuries in this report are classified using a framework recommended by the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (see Appendix C for details). Categories are assigned using the ICD-9 and ICD-10 E-code (external cause of injury) for each event. Injuries are classified along two dimensions, cause and intent (unintentional, self-inflicted, homicide, undetermined, and legal intervention or war). Hospitalizations are non-fatal hospitalizations.

[2] The estimate of the number of injuries that result in a call to a doctor's office comes from data from LA Fingerhut and M Warner. Injury Chartbook in Health, United States, 1996 – 1997, p18, 1997, National Center for Health Statistics, U.S. Public Health Service: http://www.cdc.gov/nchs/data/hus/hus96_97.pdf

[3] Race can be viewed as a proxy for the effects of complex social, cultural, economic, and political factors on human health. For example, good birth outcomes among Mexican-American women are thought to be related to socio-cultural practices supportive of healthy lifestyle choices during pregnancy. Discrimination and racism may affect the quality of medical care, leading to poorer health outcomes among African Americans. Additionally, sometimes race serves as a marker for socioeconomic status. For example, in some areas people of certain racial and ethnic groups may, as a group, have fewer material resources than other groups. Differences in health status caused by lack of access to material goods may appear as differences in health status among racial and ethnic groups, although the root cause is not race or ethnicity.

[4] Guidelines for Using Racial and Ethnic Groups in Data Analyses, Washington State Department of Health, July 2003: www.doh.wa.gov/Data/Guidelines/Raceguide1.htm

[5] Census tracts are small geographic areas within counties. They generally have between 2,500 and 8,000 residents.

[6] National SAFE KIDS Campaign (NSKC). Children at Risk Fact Sheet. Washington (DC): NSKC, 2004: www.safekids.org/tier3_cd.cfm?folder_id=540&content_item_id=1031.

[7] Centers for Disease Prevention and Control, National Center for Injury Prevention and Control, Impaired Violence and Facts on Adolescent Injury Fact Sheets: www.cdc.gov/ncipc/factsheets/drving.htm and www.cdc.gov/ncipc/factsheets/adoles.htm

[8] Centers for Disease Prevention and Control, National Center for Injury Prevention and Control, Youth Violence Fact Sheet: www.cdc.gov/ncipc/factsheets/yvfacts.htm

[9] The bullying question on the Healthy Youth Survey defines bullied as "a student is being bullied when another student, or group of students, say or do nasty or unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she doesn't like. It is NOT bullying when two students of about the same strength quarrel or fight."

[10] Data in this report are not broken down by cause and county because of small numbers. The overall numbers of deaths and injury deaths to Washington children by county are provided in Appendix C. More county-specific injury data is available at the Washington State Department of Health Injury Prevention Program website at: www.doh.wa.gov/cfh/Injury/Tables_update.htm.

[11] See Specific Rates section in Appendix A for discussion of age-adjustment.

[12] For more information on rural and urban residence disparities, see Office of Community and Rural Health, Washington State Department of Health: www.doh.wa.gov/hsqa/ocrh/har/hcresrch.htm

[13] Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Childhood Agricultural Injury Prevention Initiative: www.cdc.gov/niosh/childag/